

We claim:

1. A breathable multilayered thermoplastic film comprising:

a core layer comprising a first extrudable thermoplastic composition

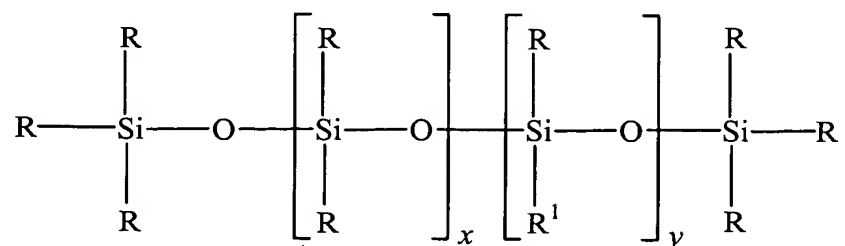
5 wherein the first extrudable thermoplastic composition comprises an extrudable thermoplastic polymer and an inorganic filler and the core layer has a first exterior surface and a second exterior surface,

a first skin layer and a second skin layer wherein the first skin layer and the second skin layer comprise a second extrudable thermoplastic composition  
10 further wherein the second extrudable thermoplastic composition comprises an extrudable thermoplastic polymer and from about 0.005 to about 0.2 weight percent of a polyorganosiloxane or a mixture of polyorganosiloxanes relative to the total weight of the second extrudable thermoplastic composition,

the first skin layer attached to the first exterior surface of the core layer  
15 and the second skin layer attached to the second exterior surface of the core layer to form the multilayer film,

the multilayer film defining an overall thickness, the first skin layer defining a first skin layer thickness and the second skin layer defining a second skin layer thickness wherein the first skin thickness and the second skin thickness comprise  
20 less than about 20 percent of the overall thickness, the overall thickness not exceeding about 30 micrometers and wherein the multilayer film is a liquid barrier and has a WVTR of at least about 300 g/m<sup>2</sup>/24 hours.

2. The breathable multilayered thermoplastic film of claim 1 wherein the  
25 polyorganosiloxane is a polyorganosiloxane selected from the group of polyorganosiloxanes of the following formula:



wherein R is an alkyl radical and R<sup>1</sup> is a monovalent organic radical containing at least one ethylene oxide group, vicinal epoxy group or amino group and x and y are independently selected from the group of positive integers.

- 5     3. The breathable multilayered thermoplastic film of claim 1 wherein the first skin layer thickness is greater than about 0.5 micron and less than about 2.7 micron and the second skin layer thickness is greater than about 0.5 micron and less than about 2.7 micron.
- 10    4. The breathable multilayered thermoplastic film of claim 1 wherein the second extrudable thermoplastic composition comprises from about 1 weight percent to about 20 weight percent of an inorganic filler or a combination of inorganic fillers total weight of the second extrudable thermoplastic composition.
- 15    5. The breathable multilayered thermoplastic film of claim 4 wherein the second extrudable thermoplastic composition comprises a copolymer of ethylene and vinyl acetate.
- 20    6. The breathable multilayered thermoplastic film of claim 1 wherein the second extrudable thermoplastic composition comprises a polypropylene-ethylene random copolymer or a low density polyethylene homopolymer.
- 25    7. The breathable multilayered thermoplastic film of claim 1 wherein the first extrudable thermoplastic composition comprises from about 30 weight percent to about 80 weight percent of an inorganic filler or a combination of inorganic fillers total weight of the first extrudable thermoplastic composition.
- 30    8. The breathable multilayered thermoplastic film of claim 1 wherein the first extrudable thermoplastic composition comprises a linear low density polyethylene.

9. The breathable multilayered thermoplastic film of claim 1 wherein the multilayer film is a liquid barrier and has a WVTR of at least about 500 g/m<sup>2</sup>/24 hours.

5 10. A process for reducing die lip build up during melt extrusion of a film, the process comprising:

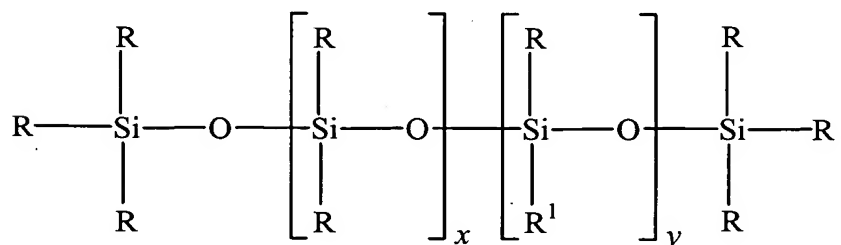
providing a first molten thermoplastic composition and a second molten thermoplastic composition; and

10 forming the first thermoplastic composition and the second molten thermoplastic composition into a film;

wherein the second molten thermoplastic composition comprises an amount of a polyorganosiloxane or a mixture of polyorganosiloxanes that is greater than the amount of polyorganosiloxane or a mixture of polyorganosiloxanes contained in the first thermoplastic composition.

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11. The process of claim 10 wherein the polyorganosiloxane is a polyorganosiloxane selected from the group of polyorganosiloxanes of the following formula:



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wherein R is an alkyl radical and R<sup>1</sup> is a monovalent organic radical containing at least one ethylene oxide group, vicinal epoxy group or amino group and x and y are independently selected from the group of positive integers.

25 12. The process of claim 10 wherein the amount of polyorganosiloxane in the second thermoplastic composition ranges from about 0.01 to about 0.2 weight

percent of a polyorganosiloxane or a combination of polyorganosiloxanes relative to the total weight of the second thermoplastic composition.

13. The process of claim 10 wherein the amount of polyorganosiloxane in the second thermoplastic composition ranges from about 0.01 to about 0.15 weight percent of a polyorganosiloxane or a combination of polyorganosiloxanes relative to the total weight of the second thermoplastic composition.

14. The process of claim 10 wherein the amount of polyorganosiloxane in the second thermoplastic composition ranges from about 0.01 to about 0.10 weight percent of a polyorganosiloxane or a combination of polyorganosiloxanes relative to the total weight of the second thermoplastic composition.

15. The process of claim 10 wherein the amount of polyorganosiloxane in the second thermoplastic composition ranges from about 0.01 to about 0.075 weight percent of a polyorganosiloxane or a combination of polyorganosiloxanes relative to the total weight of the second thermoplastic composition.

16. The process of claim 10 wherein the film is a multilayer film comprising at least one interior layer and two exterior layers, the exterior layers comprises the second thermoplastic composition and the polyorganosiloxane or a mixture of polyorganosiloxanes is included in the exterior layers at an amount that ranges from about 0.01 to about 0.2 weight percent of the exterior layers.

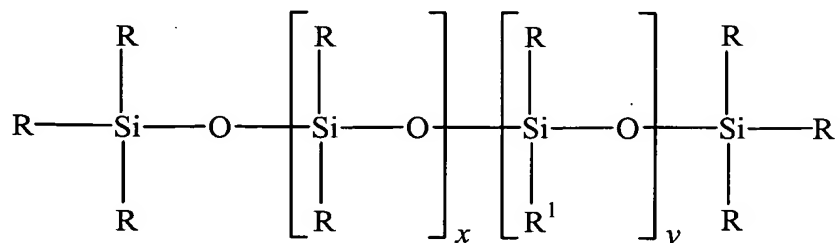
17. The process of claim 10 wherein the film is a breathable liquid barrier and has a WVTR of at least about 300 g/m<sup>2</sup>/24 hours.

18. The process of claim 10 wherein the film is a breathable liquid barrier and has a WVTR of at least about 300 g/m<sup>2</sup>/24 hours.

19. A thermoplastic film comprising

a surface that comprises from about 0.01 to about 0.2 weight percent of a polyorganosiloxane or a mixture of polyorganosiloxane relative to the total weight of the region proximate the surface of the thermoplastic film or fiber.

- 5 20. The thermoplastic film of claim 19 wherein the polyorganosiloxane is a polyorganosiloxane selected from the group of polyorganosiloxanes of the following formula:



- 10 wherein R is an alkyl radical and R<sup>1</sup> is a monovalent organic radical containing at least one ethylene oxide group, vicinal epoxy group or amino group and x and y are independently selected from the group of positive integers.

- 15 21. The thermoplastic film of claim 19 wherein surface that comprises from about 0.01 to about 0.2 weight percent of a polyorganosiloxane relative to the total weight of the surface of the region proximate the surface of the thermoplastic film is an enriched region relative to the interior of the film and wherein the interior of the film comprises less than 0.01 of a polyorganosiloxane relative to the total weight of the of the region proximate the interior of the thermoplastic film.

- 20 22. The thermoplastic film of claim 19 wherein both surfaces of the thermoplastic film comprise from about 0.01 to about 0.2 weight percent of a polyorganosiloxane relative to the total weight of the regions proximate the surfaces of the thermoplastic film.

- 25 23. The thermoplastic film of claim 19 wherein both surfaces comprises from about 0.01 to about 0.2 weight percent of a polyorganosiloxane relative to the total weight of regions proximate the surfaces of the thermoplastic film are

enriched regions relative to the interior of the film and the interior of the film comprises less than 0.01 of a polyorganosiloxane relative to the total weight of the of the region proximate the interior of the thermoplastic film.

- 5    24. The thermoplastic film of claim 19 wherein the thermoplastic film comprises a polyolefin.

25. The thermoplastic film of claim 24 wherein the polyolefin is selected from the group consisting of homopolymers and copolymers of ethylene and

- 10    homopolymers and copolymers of propylene.